

Adding and subtracting mixed numbers

We can add and subtract mixed numbers, each of which is the sum of a whole number and a fraction.

When we need to add or subtract mixed numbers, we deal with the whole numbers separately from the fractions, and we find a common denominator for the fractions.

Let's try an example of addition of mixed numbers.

Example

Find the sum.

$$6\frac{3}{7} + 2\frac{1}{4}$$

First, we'll separate the whole numbers from the fractions.

$$(6 + 2) + \left(\frac{3}{7} + \frac{1}{4} \right)$$

Next, we'll find a common denominator for the fractions.

$$(6 + 2) + \left[\frac{3}{7} \left(\frac{4}{4} \right) + \frac{1}{4} \left(\frac{7}{7} \right) \right]$$

$$(6 + 2) + \left(\frac{12}{28} + \frac{7}{28} \right)$$



Now we'll add the whole numbers and the fractions separately.

$$8 + \frac{19}{28}$$

As a mixed number, the answer is

$$8\frac{19}{28}$$

If we want to convert this to an improper fraction, we'll take the following steps:

$$8\frac{19}{28} = \frac{(28 \times 8) + 19}{28}$$

$$8\frac{19}{28} = \frac{224 + 19}{28}$$

$$8\frac{19}{28} = \frac{243}{28}$$

Let's try an example of subtraction of mixed numbers.

Example

Find the difference.

$$6\frac{3}{7} - 2\frac{1}{4}$$



First, we'll separate the whole numbers from the fractions.

$$(6 - 2) + \left(\frac{3}{7} - \frac{1}{4} \right)$$

Next, we'll find a common denominator for the fractions.

$$(6 - 2) + \left[\frac{3}{7} \left(\frac{4}{4} \right) - \frac{1}{4} \left(\frac{7}{7} \right) \right]$$

$$(6 - 2) + \left(\frac{12}{28} - \frac{7}{28} \right)$$

Now we'll subtract the whole numbers and the fractions separately.

$$4 + \frac{5}{28}$$

As a mixed number, the answer is

$$4\frac{5}{28}$$

If we want to convert this to an improper fraction, we'll take the following steps:

$$4\frac{5}{28} = \frac{(28 \times 4) + 5}{28}$$

$$4\frac{5}{28} = \frac{112 + 5}{28}$$

$$4\frac{5}{28} = \frac{117}{28}$$



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